What is claimed is:

1. A moving image coding method for coding a moving image, every macro block which forms a predetermined area of a present image, with using intra coding in which image data are orthogonal-transformed, and then image data after the orthogonal-transformation are quantized and variable-length coded, and inter coding in which a motion vector of the present image relative to a reference image is detected, motion compensation for the reference image with using the motion vector is performed, differential data between the present image and the reference image after the motion compensation are orthogonal-transformed, and then differential data after the orthogonal transformation are quantized and variable-length coded, and

for storing, for purpose of the inter coding, a reference image of image frame next to the present image generated by inverse-quantizing and inverse-orthogonal-transforming image data after the quantization or differential data after the quantization in a reference image memory, comprising the step of:

determining position of a macro block which is intra-coded or inter-coded, in a range of the maximum number of macro blocks inter-coded in one image frame, when an image (Mth frame, $M \leqq N-1$) prior to a present image (Nth frame)

is coded.

2. A moving image coding method according to claim 1, wherein

macro blocks in a reference image of the next image frame, for only position of which is determined to perform the inter coding, are stored in the reference image memory.

3. A moving image coding method according to claim 1, wherein

the maximum number of macro blocks which is inter-coded is below the number of macro blocks configuring an image frame.

4. A moving image coding method according to claim 1, wherein

the maximum number of macro blocks which is inter-coded is suitably determined based upon available capacity of the reference image memory.

5. A moving image coding method according to claim 1, wherein

the orthogonal transformation is a discrete cosine transform (DCT).

6. A moving image coding method according to claim 1, wherein

the variable-length coding is Huffman coding.

7. A moving image coding method according to claim 1, wherein

position of a macro block which is intra-coded or inter-coded in Nth frame is determined based upon at least one of evaluations of image information and code quantity at a time of coding of an image in or prior to (N-1) th frame.

8. A moving image coding method according to claim 1, wherein

position of a macro block which is intra-coded or inter-coded in Nth frame is determined in or prior to (N-1)th fame by an external.

9. A moving image coding method according to claim 1, wherein

the macro block is intra-coded based on an instruction for stopping inter coding at a time of coding of macro block identically positioned in a macro block for which inter coding is determined to be performed in or prior to (N-1)th frame.

10. A moving image coding method according to claim 1, wherein

position of a macro block which is intra-coded or inter-coded in Nth frame is determined based upon at least one of evaluations of image information and total code quantity of all macro blocks in (N-2)th frame at a time of coding of (N-1)th frame.

11. A moving image coding method according to claim 1, wherein

position of a macro block which is intra-coded or inter-coded in Nth frame is determined based upon at least one of evaluations of image information and code quantity of every macro block in (N-1)th frame.

12. A moving image coding method according to claim 1, wherein

macro blocks which is intra-coded or inter-coded is provided in a form of a pattern having staggered arrangement.

13. A moving image coding method according to claim 1, wherein

in a case that it is determined to perform inter

coding for macro blocks to be encoded and it is determined to perform intra coding for macro blocks equal to or more than a predetermined number and adjacent to the macro blocks to be encoded, inter coding is performed for the macro blocks to be encoded with zero as the motion vector.

14. A moving image coding method according to claim 1, wherein

it is selected in inter coding whether motion compensation is performed or not.

15. A moving image coding method according to claim 1, wherein

position information of macro blocks stored in the reference image memory is held.

16. A moving image coding method according to claim 1, wherein

in the case evaluation function value calculated based upon difference between a macro block identically positioned in a macro block for which inter coding is performed in (N-1)th frame and a macro block of its reference image is larger than a predetermined threshold, intra coding is performed, in Nth frame, for the macro block identically positioned in the macro block for which

the inter coding is performed in the (N-1)th frame.

17. A moving image coding method according to claim 1, wherein

in a case the number of macro blocks stored in the reference image memory is equal to the maximum number of macro blocks for which inter coding is performed, intra coding is performed for a macro block, which is positioned in a subsequent macro block, in the next image frame.

18. A moving image coding method according to claim 1, wherein

in the case a frequency of continuous inter coding for macro blocks identically positioned in a macro block for which inter coding is performed in (N-1)th frame is larger than a predetermined threshold, intra coding is performed for a macro block identically positioned in the macro block for which the inter coding is performed in the (N-1)th frame in Nth frame.

19. A moving image coding method according to claim 1, wherein

in the case evaluation function value calculated based upon difference between a inter-coded macro block adjacent to a macro block for which is intra-coded in (N-

1)th frame and a macro block of its reference image is smaller than the predetermined threshold and the number of macro blocks stored in the reference image memory is smaller than the number of the maximum number of macro blocks which can be stored in the reference image memory, inter coding is performed, in Nth frame, for the macro block identically positioned in the macro block for which the intra coding is performed in the (N-1)th frame.

20. A moving image coding method according to claim 1, wherein

in the case code quantity of a macro block for which intra coding is performed in (N-1)th frame is more than a predetermined threshold and the number of macro blocks stored in the reference image memory is smaller than the maximum number of macro blocks which can be stored in the reference image memory, inter coding is performed, in Nth frame, for the macro block identically positioned in the macro block for which the intra coding is performed in the (N-1)th frame.

21. A moving image coding method according to claim 1, wherein

in the case a frequency of continuous intra coding for macro block identically positioned in a macro block for

which intra coding is performed in (N-1)th frame is larger than a predetermined threshold and the number of macro blocks stored in the reference image memory is smaller than the maximum number of macro blocks which can be stored in the reference image memory, inter coding is performed, in Nth frame, for the macro block identically positioned in the macro block for which the intra coding is performed in the (N-1)th frame.

22. A moving image coding method according to claim 1, wherein

motion information of a target area for which intra coding is performed is provided in (N-1)th frame;

intra coding is performed, in Nth frame, for a macro block identically positioned in a macro block which is predicted to be the target area in Nth frame; and

inter coding is performed, in Nth frame, for a macro block in the periphery of the macro block.

23. A moving image coding method according to claim 1, wherein

in a case of coding a moving image in which image frame is configured by macro blocks which number is equal to or less than the maximum number of inter-coded macro blocks, macro blocks of a reference image are generated for

all positions of a macro block and are stored in the reference image memory; and

in a case of coding a moving image in which image frame is configured by macro blocks which number exceeds the maximum number of inter-coded macro blocks, macro blocks of a reference image are generated for only position of a macro block which is determined to be performed inter coding and are stored in the reference image memory.

24. A moving image coding method according to claim 1, wherein

a frequency of inter coding is held every position of macro blocks; and

in starting, inter coding is performed for macro blocks from a macro block positioned where a frequency of inter coding is more in order.

25. A moving image coding method according to claim 24, wherein

it is selected whether the frequency of inter coding is held or not and whether inter coding is previously performed from a macro block positioned where a frequency of inter coding is more in order or not.

26. A moving image coding method according to claim 1,

wherein

in a case a sum of code quantity of all macro blocks which are inter-coded in (N-1)th frame exceeds a predetermined threshold for detecting scene change, intra coding is performed for all macro block in the Nth frame.

27. A moving image coding method for coding a moving image, every macro block which forms a predetermined area of a present image, with using intra coding in which image data are orthogonal-transformed, and then image data after the orthogonal-transformation are quantized, and variable-length coded, and inter coding in which a motion vector of the present image relative to a reference image is detected, motion compensation for the reference image with using the motion vector is performed, differential data between the present image and the reference image after the motion compensation are orthogonal-transformed, and then differential data after the orthogonal transformation are quantized and variable-length coded, and

for storing, for purpose of the inter coding, a reference image of image frame next to the present image generated by inverse-quantizing and inverse-orthogonal-transforming image data after the quantization or differential data after the quantization in a reference image memory, comprising the step of:

determining position of a macro block which is intra-coded or inter-coded in a predetermined pattern.

28. A moving image coding method according to claim 27, wherein

the predetermined pattern is a pattern where macro blocks which is inter-coded are arranged in staggered format.

29. A moving image coding method according to claim 27, wherein

the predetermined pattern is a pattern where macro blocks which is inter-coded are arranged in lattice format.

30. A moving image coding apparatus provided with encoding means for encoding a moving image, every macro block which forms a predetermined area of a present image, with using intra coding for in which image data are orthogonal-transformed, and then image data after the orthogonal transformation are quantized and variable-length coded, and inter coding in which a motion vector of the present image relative to a reference image is detected, motion compensation for the reference image with using the motion vector is performed, differential data between the present image and the reference image after the motion

compensation are orthogonal-transformed, and then differential data after the orthogonal transformation are quantized and variable-length coded, and

a reference image memory for storing, for purpose of the inter coding, a reference image of image frame next to the present image generated by inverse-quantizing and inverse-orthogonal-transforming image data after the quantization or differential data after the quantization, comprising:

determining means for determining position of a macro block which is intra-coded or inter-coded in a range of the maximum number of macro blocks which is inter-coded in one image frame when an image (Mth frame, $M \leqq N-1$) prior to a present image (Nth frame) is coded.

31. A moving image coding apparatus according to claim 30, wherein

the reference image memory stores macro blocks in a reference image of the next image frame, for only position of which is determined to perform the inter coding.

32. A moving image coding apparatus according to claim 30, wherein

the reference image memory has smaller capacity than capacity required to store a reference image for all macro

blocks configuring an image frame.

33. A moving image coding apparatus according to claim 30, comprising:

address management means for managing position of a macro block in a reference image stored in the reference image memory in correspondence with an address of the reference image memory.

34. A moving image coding apparatus according to claim 30, comprising:

macro block number counting means for counting the number of macro blocks in a reference image stored in the reference image memory.

35. A moving image coding apparatus according to claim 34, wherein

in a case the number of macro blocks stored in the reference image memory is equal to the maximum number of macro blocks for which inter coding is performed, the determining means determines to intra code for a macro block, which is positioned in a subsequent macro block, in the next image frame.

36. A moving image coding apparatus according to claim

30, comprising:

function value calculating means for calculating evaluation function value based upon difference between a macro block identically positioned in a macro block for which inter coding is performed and a macro block in a reference image stored in the reference image memory.

37. A moving image coding apparatus according to claim 36, wherein

the determining means performs intra coding for a macro block identically positioned in the macro block for which the inter coding is performed in a next image frame, in a case the evaluation function value is larger than a predetermined threshold.

38. A moving image coding apparatus according to claim 30, comprising:

inter coding frequency counting means for counting a frequency of continuous inter coding in each position of a macro block.

39. A moving image coding apparatus according to claim 38, wherein

the determining means performs intra coding for a macro block positioned where the frequency of continuous

inter coding is equal to a predetermined threshold in the next image frame.

40. A moving image coding apparatus according to claim 30, comprising:

intra coding frequency counting means for counting a frequency of continuous intra coding in each position of a macro block.

41. A moving image coding apparatus according to claim 40, wherein

the determining means performs inter coding for a macro block positioned where the frequency of continuous intra coding is equal to a predetermined threshold in the next image frame, in a case the number of macro blocks stored in the reference image memory is smaller than the maximum number of macro blocks which can be stored in the reference image memory.

42. A moving image coding apparatus according to claim 30, wherein

the coding means performs inter coding for a macro block adjacent to all or over-predetermined number of a macro block which is intra-coded with zero as the motion vector.

43. A semiconductor integrated circuit, comprising the moving image coding apparatus according to claim 30.